

FIG. 1

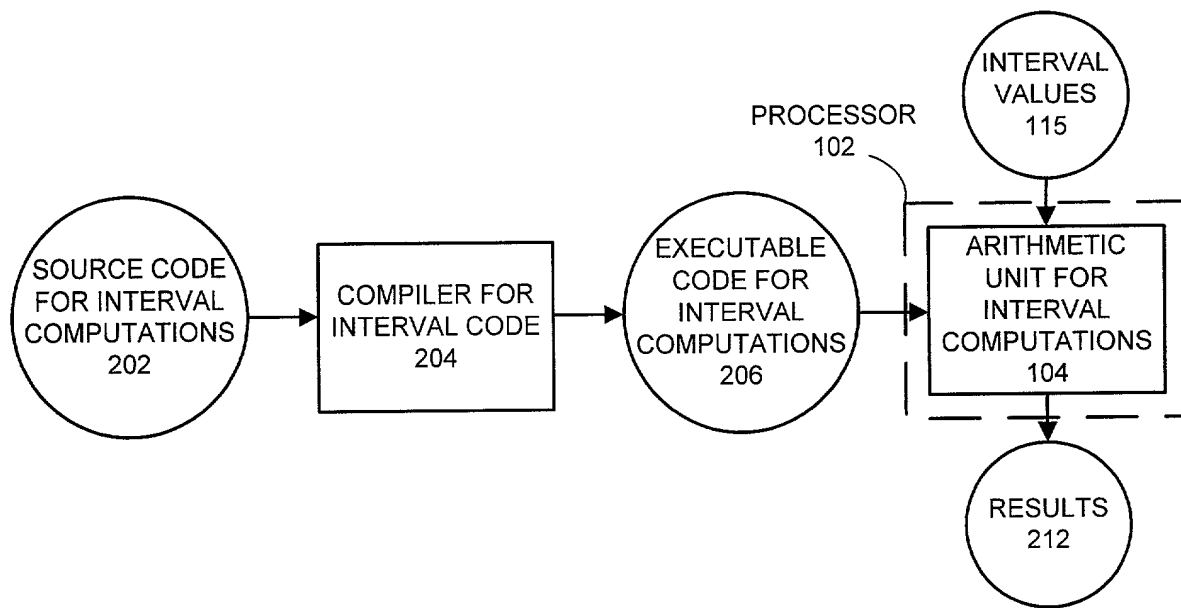


FIG. 2

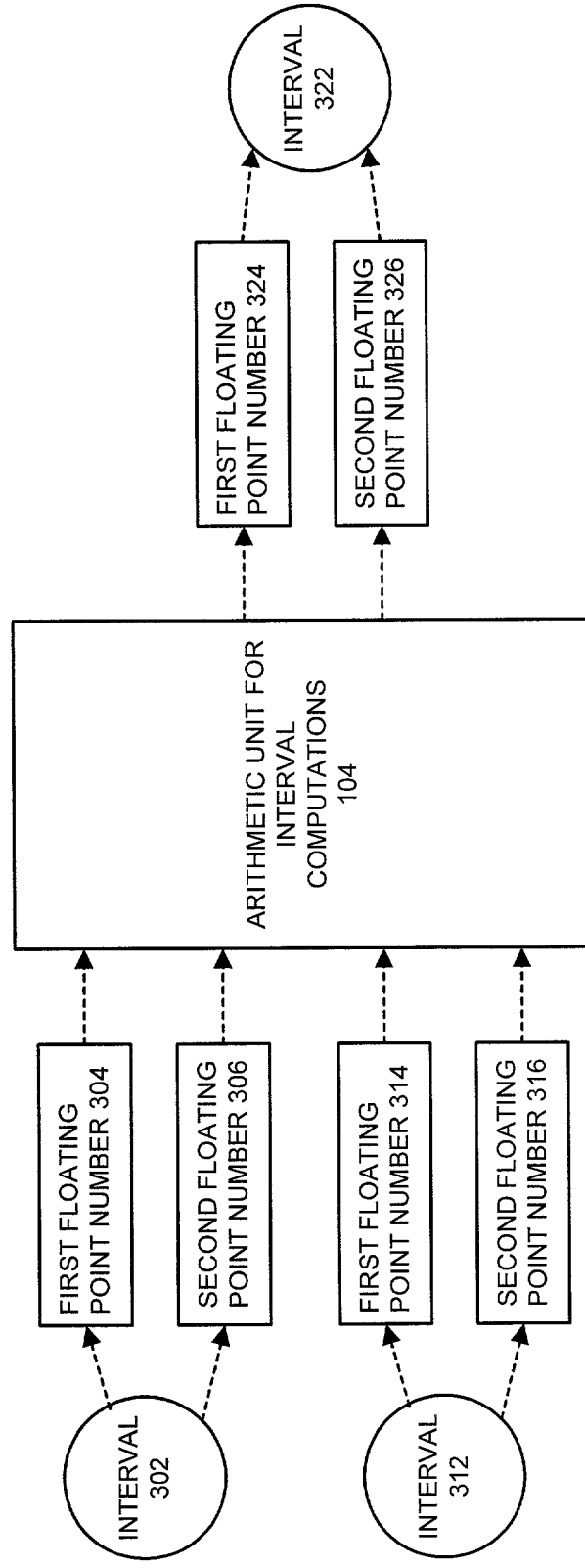


FIG. 3

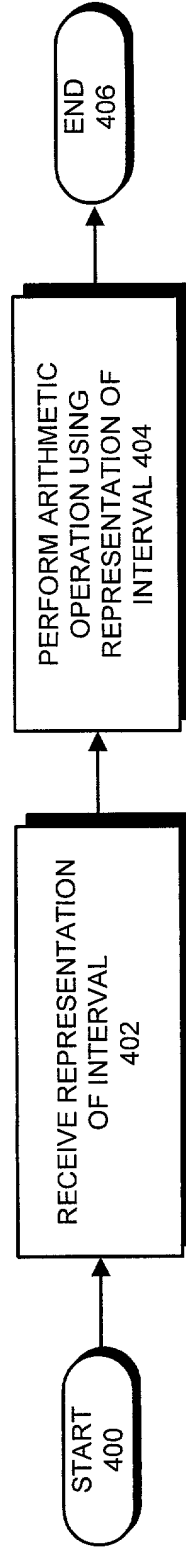


FIG. 4

$$X \equiv [\underline{x}, \bar{x}] \equiv \{x \in \mathfrak{R}^* | \underline{x} \leq x \leq \bar{x}\}$$

$$Y \equiv [\underline{y}, \bar{y}] \equiv \{y \in \mathfrak{R}^* | \underline{y} \leq y \leq \bar{y}\}$$

$$(1) \quad X + Y = [\downarrow \underline{x} + \underline{y}, \uparrow \bar{x} + \bar{y}]$$

$$(2) \quad X - Y = [\downarrow \underline{x} - \bar{y}, \uparrow \bar{x} - \underline{y}]$$

$$(3) \quad X \times Y = [\min(\downarrow \underline{x} \times \underline{y}, \underline{x} \times \bar{y}, \bar{x} \times \underline{y}, \bar{x} \times \bar{y}), \max(\uparrow \underline{x} \times \underline{y}, \underline{x} \times \bar{y}, \bar{x} \times \underline{y}, \bar{x} \times \bar{y})]$$

$$(4) \quad X/Y = [\min(\downarrow \underline{x}/\underline{y}, \underline{x}/\bar{y}, \bar{x}/\underline{y}, \bar{x}/\bar{y}), \max(\uparrow \underline{x}/\underline{y}, \underline{x}/\bar{y}, \bar{x}/\underline{y}, \bar{x}/\bar{y})], \text{ if } 0 \notin Y$$

$$X/Y \subseteq \mathfrak{R}^*, \text{ if } 0 \in Y$$

FIG. 5

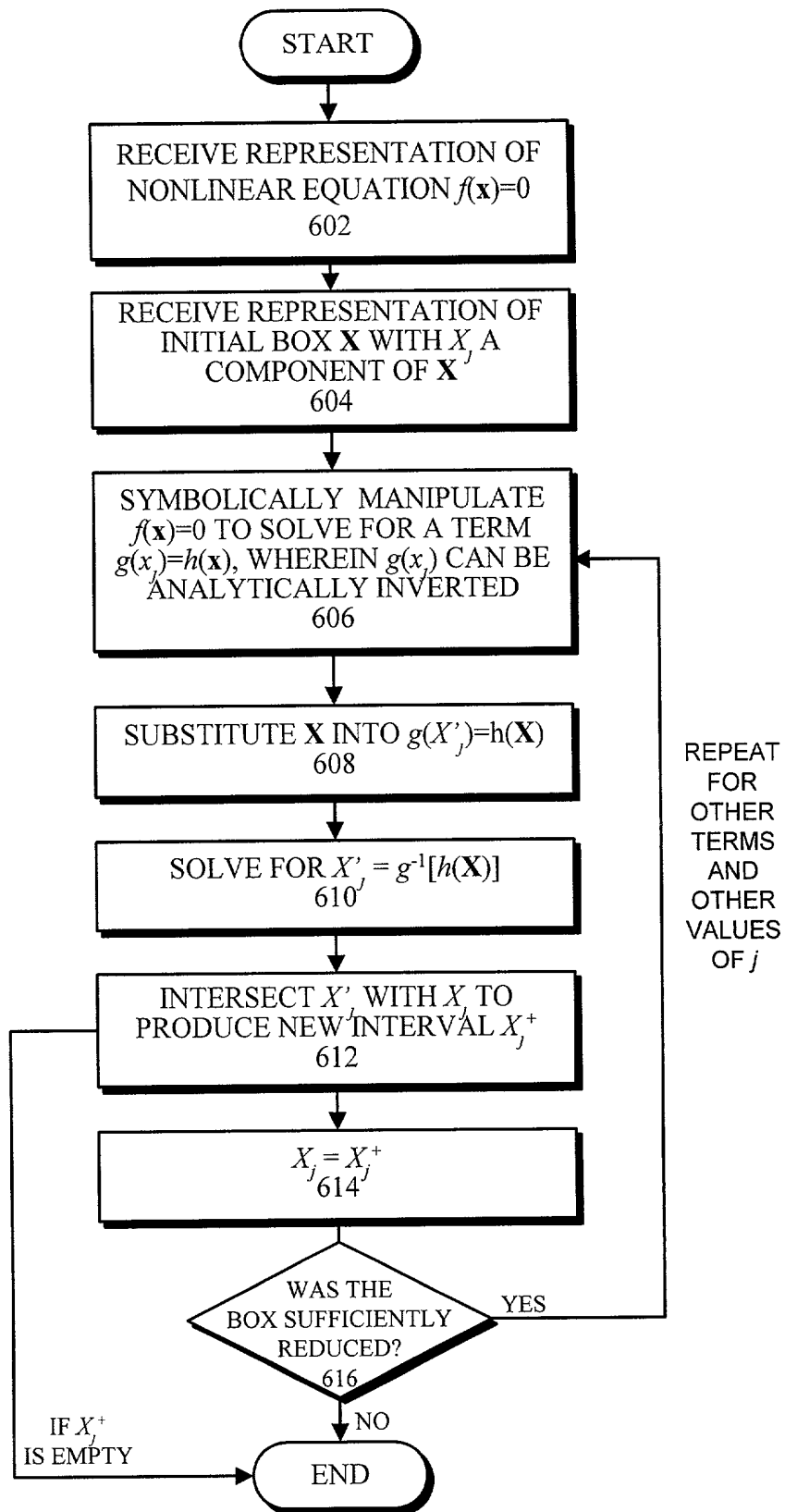


FIG. 6

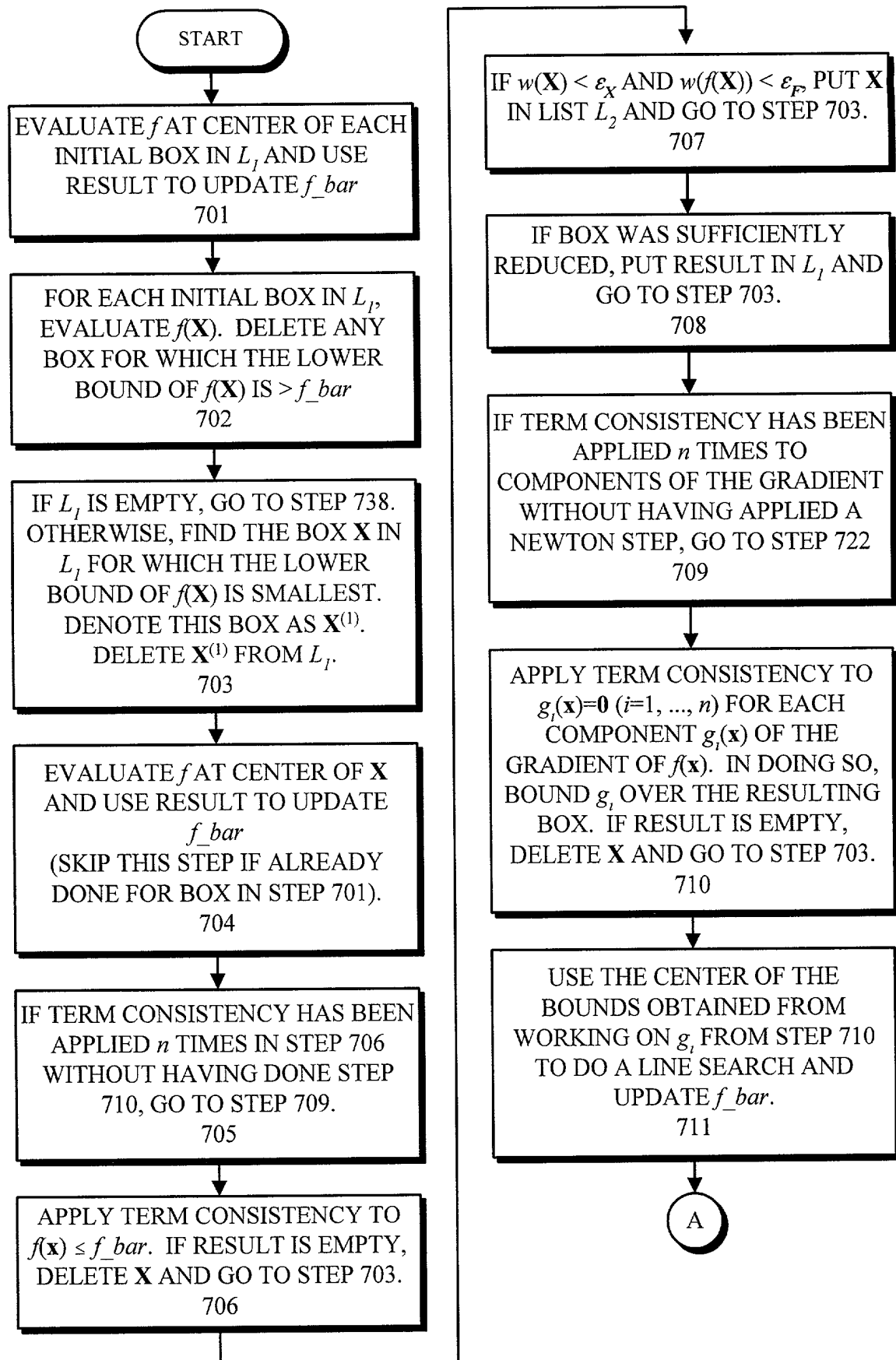


FIG. 7A

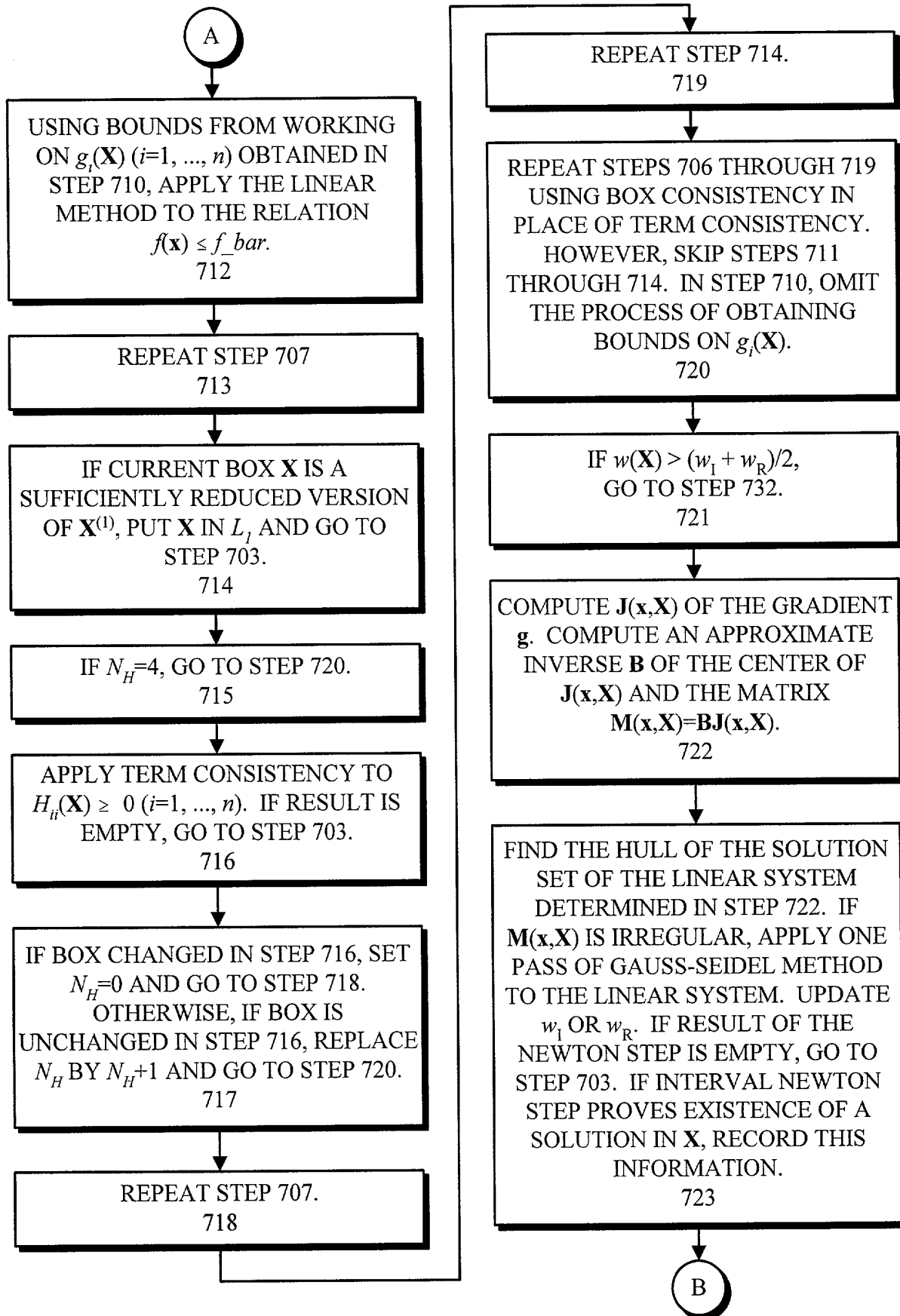


FIG. 7B

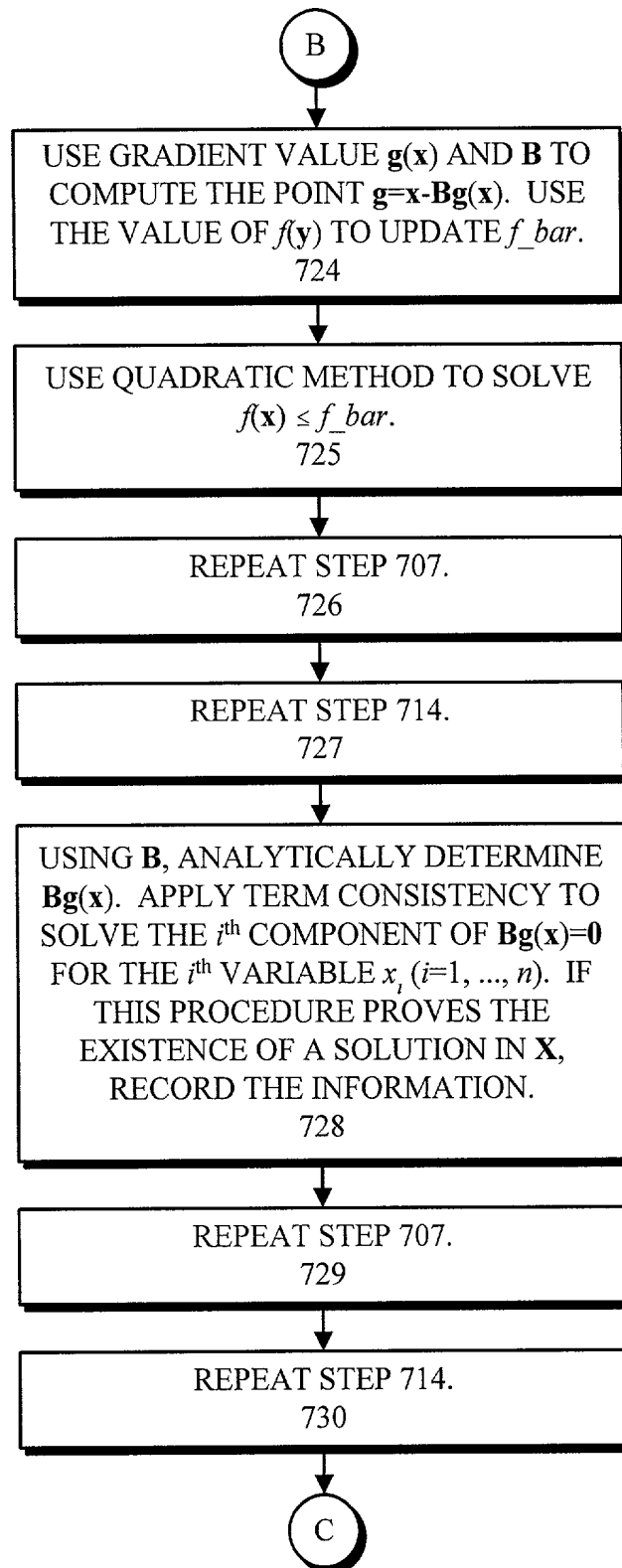


FIG. 7C

C

APPLY BOX CONSISTENCY TO THE i^{th} COMPONENT OF $\mathbf{Bg}(\mathbf{x})$ FOR THE i^{th} VARIABLE FOR $i=1, \dots, n$.

731

REPEAT STEP 707.

732

IF WIDTH OF BOX WAS REDUCED BY A FACTOR OF AT LEAST 8 IN THE NEWTON STEP, GO TO STEP 722.

733

REPEAT STEP 714.

734

MERGE ANY OVERLAPPING GAPS IN COMPONENTS OF \mathbf{x} . IF ANY GAPS ARE SUITABLE FOR SPLITTING \mathbf{x} , GO TO STEP 733. OTHERWISE, GO TO STEP 737.

735

SELECT THREE GAPS AND SPLIT \mathbf{x} INTO SUB BOXES THEN GO TO STEP 703.

736

SPLIT THE THREE COMPONENTS OF \mathbf{x} FOR WHICH D_i ($i=1, \dots, n$) IS LARGEST. SPLIT EACH SUCH COMPONENT, THEN GO TO STEP 703.

737

703 → DELETE ANY BOX \mathbf{x} FROM LIST L_2 FOR WHICH THE LOWER BOUND OF $f(\mathbf{x})$ IS LESS THAN f_{bar} . DENOTE THE REMAINING BOXES $\mathbf{x}^{(1)}, \dots, \mathbf{x}^{(s)}$. DETERMINE LOWER BOUND FOR GLOBAL MINIMUM.

738

TERMINATE.

739

FIG. 7D